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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/524,026	**Applicant(s)** NIIHO ET AL.	
	Examiner Hibret A. Woldekidan	**Art Unit** 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 7-28* is/are pending in the application.

4a) Of the above claim(s) *5 and 6* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 7-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/09/05*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Response to Arguments

1. Examiner acknowledges receipt of Applicant's Amendments, remarks, arguments received on 5/6/2008. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, 7,10-14,17-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz et al. (6801767) in view of Ichibangase et al. (US 20020114042)

Considering claim 1, Schwartz discloses a wireless access system using Carrier Sense Multiple access for Media Access Control of a host device by using a plurality of terminals(**See Abstract, Col. 9 lines 21-35, fig. 1 i.e. a wireless distribution or access system for distributing signal from the host device(Element 120 of fig. 1) by using a plurality of terminals)**, the wireless access system comprising: a master station for converting a first downstream electrical signal received from the host device into a downstream optical signal **(See abstract lines 1-3, Col. 10 lines 25-28, figure 1,2A, i.e. a main unit(Element 101) for converting the input signal to optical signal**

and transmitting the converted signals to a plurality of remote units(Element 102 of fig. 1) through optical fiber(Element 107 of fig. 1)) and transmitting the downstream optical signal via an optical fiber transmission line**(See Col. 9 line 35-40, fig. 1 i.e. optical fiber transmission line(Element 107) for transmitting optical signals from the main unit(Element 120) to the remote units(Element 102))**, and for converting an upstream optical signal received via the optical fiber transmission line into a first upstream electrical signal**(See Col. 3 lines 35-39, fig. 1 i.e. the main unit (Element 101) also converting the received upstream signals from the remote stations(Element 102) to another form of signals(RF signals))** and transmitting the first upstream electrical signal to the host device **(See Col. 3 lines 35-39, fig. 1 i.e. the main unit (Element 101) for transmitting the upstream converted signal to the host device (Element 120 of fig. 1))**;

a plurality of slave stations **(See fig. 1 Element 102,103,104 i.e. slave station or remote units)** each for converting a second upstream electrical signal received from any one of the plurality of terminals in a wireless communications area into the upstream optical signal **(See Col. 5 line 10-26, fig. 1 i.e. remote units(Element 102,103,104) for receiving RF signals from a plurality of terminals and for converting the received RF signals into electrical signals)** and transmitting the upstream optical signal via the optical fiber transmission line**(See Col. 12 lines 23-30, fig. 1 i.e. The remote unit for transmitting the converted optical signals to the main unit through optical fibers(Element 107))**, and for converting the downstream optical signal received via the optical fiber transmission line into a second downstream

electrical signal **(See Col.2 line 60-65, fig. 1 i.e. remote units(Elements 102) for converting the optical signal received from the main unit(Element 101) to another form of signal(RF signal))** and transmitting the second downstream electrical signal to the wireless communications area**(See Col.3 line 4-9, fig. 1 i.e. The remote units for transmitting the converted(RF) signals into a wireless communications network through the antenna)**;

and an access control section for transmitting the downstream optical signal received from the master station to the plurality of slave stations via the optical fiber transmission line **(See Col. 4 lines 23-25, fig. 1 i.e. Expansion unit(Element 105) for receiving downstream optical signals from the main unit(Element 101) to the remote units(Element 103,104) via optical fibers(Element 108,109,110))**, <u>and</u> transmitting the upstream optical signal transmitted from the any one of the plurality of slave stations to the master station **(See Col. 4 lines 23-25, Col. 9 lines 55-59, fig. 1 i.e. Expansion unit(Element 105) for transmitting the upstream signal from the remote units(Element 108-109) to the main unit(Element 101))**, <u>and to</u> other slave stations of the plurality of slave stations <u>via the optical fiber transmission line</u> **(See Col. 9 lines 43-45, fig. 1 i.e. the expansion unit(Element 105) connected to the remote units(Element 103,104) via optical fibers(Element 108,109,110))**.

Schwartz discloses the access control unit(mutiplex/demultiplex unit) or the expansion unit serves as an intermediate unit to link the communications between the main unit and the remote units **(See Col. 6 lines 57-59)** by demutiplexing and transmitting the downstream optical signal received from the main unit to a plurality of

remote units and receiving and multiplexing up streams optical signals from a plurality of remote units to the main unit **(See Col. 4 lines 23-39, fig. 1 i.e. the expansion unit(105) receives downstream optical signals from the main unit(101) and transmits the received signals to the plurality of remote units(103,104,106). Also the expansion unit (105) receives upstream signal from the plurality of remote units(106,104,103) and transmits it to the main unit(101))** .

Schwartz does not specifically discloses the access control (the expansion units) receives <u>all</u> the downstream and upstreams optical signals between the master station (the main unit) and the slave stations (remote units). As shown in fig. 1 of Schwartz some of the outputs of the main unit (101) directly connected to the remote units (102) without requiring the Expansion unit (105) as an intermediate medium.

Ichibangase teaches the access control or the branching unit receives distributes <u>all</u> the downstream and upstreams optical signals between the master station and the slave stations **(See Paragraph 57, 12, fig. 12, 13 i.e. fig. 12 illustrates that the master station (Element 110) transmits all the down stream signals to the branching unit (Element 134) then the branching unit distributes the received signals to <u>all</u> slave stations (Element 120-1, 2, 3) through optical fiber (130,131,133). The branching unit (134) also receives the upstream optical signals from <u>all</u> the slave stations and multiplexes the signals and transmits it to the Master Station (110) through optical fiber (130))**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Schwartz, and modify the optical coupler

to be a loopback optical coupler, as taught by Ichibangase, thus providing a means to improve signal transmission efficiency in the network by communicating the master station and the slave station through a branching unit, as discussed by Ichibangase (Paragraph 9).

Considering Claim 2 Schwartz discloses, the wireless access system according to claim 1, wherein the access control section comprises an optical multiplexing/demultiplexing section for allowing the downstream optical signal from the master station to be demultiplexed and transmitting a plurality of demultiplexed optical signals to the plurality of slave stations **(See fig. 5a i.e. the access control section or the expansion unit(500) comprising an optical multiplexer or combiner / dimultiplexer or splitter section(505))**, and for allowing the upstream optical signal transmitted from the any one of the plurality of slave stations to be demultiplexed and transmitting a plurality of demultiplexed optical signals to the master station and the all other slave stations of the plurality of slave stations**(See Col. 4 lines 23-39, Col. 6 lines 57-59 i.e. for allowing the upstream or uplink optical signal to be transmitted from the remote or slave stations to the master or main stations)**.

Considering claim 3, Schwartz discloses the wireless access system according to claim 2, wherein the optical multiplexing/demultiplexing section returns the upstream optical signal transmitted from the one of the plurality of slave stations back to the one of the plurality of slave stations **(See Col. 18 line 14-45 i.e. transmitting a plurality of demultiplexed/multiplexed signals to the remote units or slave stations)**.

Considering claim 4, Schwartz discloses, the wireless access system according to claim 1, wherein the access control section comprises an optical multiplexing/demultiplexing section for allowing the downstream optical signal transmitted from the master station to be demultiplexed **(See Col. 6 line 65-67 i.e. optical splitting means for splitting the optical signal to multiple secondary-optical-signals)** and transmitting a plurality of demultiplexed optical signals to the plurality of slave stations**(Col. 18 line 39-45 i.e. transmitting a plurality of demultiplexed or split signals to the remote units or slave stations)**, and outputting the upstream optical signal transmitted from the one of the plurality of slave stations to the master station**(Col. 4 line 22-39 i.e. outputting the upstream optical signals from the remote or slave station to the main station)**, and the master station generates a superimposed optical signal by superimposing the upstream optical signal transmitted from the one of the plurality of slave stations onto an the downstream optical signal**(See Col 7, line 5-8, line 32-35 i.e. optical-combining element for combining optical signals)**, and returns the superimposed optical signal back to the optical multiplexing/demultiplexing section**(See Col. 4 line 34-39 i.e. transmitting combined optical signals)**.

Considering Claim 7, Schwartz inherently discloses, the wireless access system according to claim 2, wherein the optical multiplexing/demultiplexing section is an omnidirectional distribution optical multiplexer/demultiplexer including at least an optical port connected to the master station and a plurality of optical ports connected to the plurality of slave stations**(See Col. 4 lines 23-39, Fig. 5A i.e. the optical**

multiplexer/demultiplexer or combiner/splitter in the expansion unit are omnidirectional and linked between the includes one port connected to the master or main station another connected to the slave or remote stations), respectively, and having formed therein an optical transmission path through which an optical signal transmitted to any one of the optical ports is transmitted to all other optical ports of the plurality of optical ports**(See Col. 2 line 25-30 Col. 8 line 65-67, Col 9. line 1-3, Fig 2A-2D i.e. optical fiber transmission line for transmitting signals through the system)**.

Claim 10, Schwartz inherently discloses, the wireless access system according to claim7, wherein the optical multiplexing/demultiplexing section is comprises a combination of a plurality of optical multiplexing/demultiplexing units each including three optical ports **(See Col. 4 lines 30-35, fig. 1 i.e. the expansion unit(Element 105) has three optical ports(Element 103,104,106))** and having formed therein an optical transmission path through which an optical signal inputted to any one of the three optical ports is outputted to all other Optical ports**(See Col. 4 lines 30-35, Col. 7, line 32-35, fig. 1 i.e. the expansion unit(Element 105) for receiving and transmitting down and up stream signals between the main unit(101) and a branched remote units(103,109,110))** .

Considering Claim 11, Schwartz discloses, the wireless access system according to claim7, wherein the optical multiplexing/demultiplexing section is comprises a plurality of optical couplers **(See Col. 4 lines 30-35, fig. 1 i.e. the expansion unit(Element 105) has a plurality of optical couplers(Element 108,109,110))**.

Considering Claim 12, Schwartz discloses, the wireless access system according to claim 10, wherein the optical multiplexing/demultiplexing unit comprises a plurality of optical couplers **(See Col. 4 lines 30-35, fig. 1 i.e. the expansion unit(Element 105) has a plurality of optical couplers(Element 108,109,110))**.

Considering Claim 13, Schwartz discloses, the wireless access system according to claim7,wherein the optical multiplexing/demultiplexing section is comprises an optical waveguide**(See Col. 2 line 25-30 Col. 8 line 65-67, Col 9. line 1-3, Fig 2A-2D i.e. optical fiber or waveguide for guiding optical signals)**.

Considering Claim 14, Schwartz discloses, the wireless access system according to claim 10, wherein the optical multiplexing/demultiplexing unit is comprises an optical waveguide. **(See Col. 2 line 25-30 Col. 8 line 65-67, Col 9. line 1-3, Fig 2A-2D i.e. optical fiber for combining and guiding optical signals)**.

Considering Claim 17, Schwartz discloses, the wireless access system according to claim 1, Wherein the master station comprises: a first high-frequency amplification section for amplifying the first downstream electrical signal received from the host device**(See Col. 13 lines 12-39, Fig. 3A i.e. RF amplifier section(307 of fig. 3a) for amplifying signals received from the host(Element 120 of fig. 1) in the main unit or master station)**;an optical reception section for converting the upstream optical signal received from the access control section into the first upstream electrical signal **(See fig. 3a i.e. Optical to RF converters(Element 321) for converting the received upstream optical signal to RF signals)**;

an optical transmission section for converting the first downstream electrical signal

amplified by the first high-frequency amplification section into first downstream optical signal **(See fig. 3a i.e. a uplink RF to optical converter(Element 309) for converting signals to optical signal)**; and

a second high-frequency amplification section for amplifying the first upstream electrical signal converted by the optical reception section**(See fig. 3a i.e. a second uplink RF-amplifier(Element 323) for amplifying the RF signals)**.

Considering Claim 18, Schwartz discloses, the wireless access system according to claim4,where in the master station comprises: a first high-frequency amplification section for amplifying the first downstream electrical signal received from the host device**(See Col. 13 lines 12-39, Fig. 3A i.e. RF amplifier section(307 of fig. 3a) for amplifying signals received from the host(Element 120 of fig. 1) in the main unit or master station)**; an optical reception section for converting the optical signal received from the access control section into first upstream electrical signal **(See fig. 3a i.e. Optical to RF converters(Element 321) for converting the received upstream optical signal to RF signals)**; a multiplexing section for allowing the first upstream electrical signal converted by the optical reception section and the first downstream electrical signal amplified by the first high-frequency amplification section to be multiplexed together**(See Col. 17, line 54-59, fig. 4a i.e. an uplink RF-combiner(422) for combing the converted upstream RF signals (from element 421-N) and downstream RF signals(from element 421-I))**; an optical transmission section for converting a multiplexed electrical signal multiplexed by the multiplexing section into an optical signal**(See Fig. 4a i.e. optical converter (406) converting multiplexed RF**

signals from WDM(413) to optical signals); and a second high-frequency amplification section for amplifying the first upstream electrical signal converted by the optical reception section**(See fig. 4a, i.e. a uplink RF-amplifier(424) for amplifying RF signals)**.

Considering Claim 19, Schwartz discloses the wireless access system according to claim 17, wherein the master station further comprises: a transmitted/received signal multiplexing/separation section for allowing the first downstream electrical signal transmitted to the first high-frequency amplification section and the first upstream electrical signal transmitted from the second high-frequency amplification section to be multiplexed together onto a transmission line. **(See Col. 19, line 7-25 i.e. WDM filter to transmit downlink and uplink signal together in a single line)**

Considering Claim 20, Schwartz discloses, the wireless access system according to claim 17, wherein the master station further comprises: an optical signal multiplexing/separation section for allowing the downstream optical signal transmitted from the optical transmission section and the upstream optical signal received by the optical reception section to be multiplexed together onto the optical fiber transmission line **(See Col. 19, line 7-25 i.e. WDM filter to transmit downlink and uplink signal together in a single optical fiber).**

Considering Claim 21, Schwartz discloses. The wireless access system according to claim l, wherein the slave stations each comprise: an optical reception section for converting the downstream optical signal received from the access control section into the second downstream electrical signal **(See Col. 4 line 58- 62, Col. 14**

line 14-17 i.e. a remote unit comprising a downlink optical to RF- converter for converting optical signal in the downlink); a first high-frequency amplification section for amplifying the second upstream electrical signal received from the any one of the plurality of terminals**(See Col. 14 line 20-25 i.e. a remote unit comprising RF-amplifier)**; a second high-frequency amplification section for amplifying the second downstream electrical signal converted by the optical reception section**(Col. 14 line 20-25 i.e. a remote unit comprising uplink RF-amplifier Col. 15 line 17-30)**; and an optical transmission section for converting the second upstream electrical signal amplified by the first high-frequency amplification section into the upstream optical signal**(See Col. 17 line 1-5 i.e. a remote unit comprising RF to optical converter)**.

Consider Claim 22 and 23, Schwartz discloses the wireless access system according to claim 15 and 16, wherein the slave stations each comprise:
an optical reception section for converting the downstream optical signal received from the access control section into the second downstream electrical signal **(See Col. 4 line 58- 62, Col. 14 line 14-17 i.e. a remote unit comprising a downlink optical to RF-converter for converting optical signal in the downlink)**;
a first high-frequency amplification section for amplifying the second upstream electrical signal received from the any one of the plurality of terminals**(See Col. 14 line 20-25 i.e. a remote unit comprising RF-amplifier)**; a phase inversion section for inverting a phase of the second upstream electrical signal amplified by the first high-frequency amplification section**(See Col. 1, line 42-45)**; a delay section for imparting a predetermined amount of delay to the second upstream electrical signal whose phase

has been inverted by the phase inversion section**(See Col 3 line 10-20 i.e. a spatial separation)**;

a multiplexing section for allowing the second downstream electrical signal converted by the optical reception section and an electrical signal delayed by the delay section to be multiplexed together**(See Col. 3 line 22-31 i.e. a remote unit for combining signals)**;

a second high-frequency amplification section for amplifying a multiplexed electrical signal multiplexed by the multiplexing section **(See Col. 3 line 22-32 i.e. remote unit for amplifying signals)**; and an optical transmission section for converting the second upstream electrical signal amplified by the first high-frequency amplification section into the upstream optical signal**(See Col. 3 line 29-35 i.e. remote unit for converting to optical signals)**.

Consider Claim 24, Schwartz discloses, the wireless access system according to claim 21, wherein the plurality of slave stations each further comprise an optical signal multiplexing/separation section for allowing the upstream optical signal transmitted from the optical transmission section and the downstream optical signal received by the optical reception section to be multiplexed together onto the optical fiber transmission line **(See Col. 19 line 7-25, Col. 17, line 60-64, Col. 18 line 1-14 i.e. downlink and uplink optical signal transmitted on a single optical fiber).**

Consider Claim 25, Schwartz discloses, the wireless access system according to claim 21, wherein the plurality of slave stations each further comprise a transmitted/received signal multiplexing/separation section for allowing the second upstream electrical signal received by the first high-frequency amplification section and

the second downstream electrical signal transmitted from the second high-frequency amplification section to be multiplexed together onto a wireless transmission line via one antenna. **(See Col. 19, line 60-65 i.e. antenna)**

Consider Claim 26 and 27, Schwartz discloses, the wireless access system according to claim 20 and 24, wherein the optical signal multiplexing/separation section performs wavelength division multiplexing **(See Col. 18 line 14- 30, Figure 4A i.e. performing wavelength division multiplexing).**

Consider Claims 28, Schwartz discloses a wireless access method for a system using Carrier Sense Multiple Access for Media Access Control of a host device via a plurality of terminals**(See Abstract, Col. 9 lines 21-35, fig. 1 i.e. a wireless distribution or access system for distributing signal from the host device(Element 120 of fig. 1) by using a plurality of terminals)**, the method comprising: connecting the host device and the plurality of terminals via a master station, an access control section and a plurality of slave stations**(See Col. 9 line 32-50, fig. 1 i.e. a method for connecting the host device(Element 120), the remote units(Element 102) via the master station or the main unit(Element 101))**;
converting in the master station a first downstream electrical signal received from the host device into a downstream optical signal **(See abstract lines 1-3, Col. 10 lines 25-28, figure 1,2A, i.e. a main unit(Element 101) for converting the input signal to optical signal and transmitting the converted signals to a plurality of remote units(Element 102 of fig. 1) through optical fiber(Element 107 of fig. 1))**, and transmitting the downstream optical signal to the access control section through an

optical fiber transmission line**(See Col. 9 line 35-40, fig. 1 i.e. optical fiber transmission line(Element 107) for transmitting optical signals from the main unit(Element 120) to the remote units(Element 102))**; transmitting via an access control section the downstream optical signal received from the master station to the plurality of slave stations through the optical fiber transmission line**(See Col. 4 lines 23-39, fig. 1 i.e. transmitting the downstream or downlink optical signal from the main station(Element 101) or from the master station to the slave station or remote unit(Element 103,104) via the access control unit or expansion unit(Element 105));**

Converting in the plurality of slave stations the downstream optical signal received from the access control section into a second downstream electrical signal **(See Col.2 line 60-65, fig. 1 i.e. remote units(Elements 102) for converting the optical signal received from the main unit(Element 101) to another form of signal(RF signal))**, and transmitting the second downstream electrical signal to a wireless communications area**(See Col.3 line 4-9, fig. 1 i.e. The remote units for transmitting the converted(RF) signals into a wireless communications network through the antenna)**; converting in the plurality of slave stations a first upstream electrical signal received from any one of the plurality of terminals in the wireless communications area into an upstream optical signal **See Col. 5 line 10-26, fig. 1 i.e. remote units(Element 102,103,104) for receiving RF signals from a plurality of terminals and for converting the received RF signals into electrical signals)** and transmitting the upstream optical signal to the access control section through the optical fiber

transmission line**(See Col. 12 lines 23-30, fig. 1 i.e. The remote unit for transmitting the converted optical signals to the main unit through optical fibers(Element 107))**; transmitting via the access control section the upstream optical signal received from the any one of the plurality of slave stations to the master station **(See Col. 4 lines 30-39 i.e. transmitting the upstream optical signals from the slave stations(Element 104,103) to the main station(Element 101) via the access control section(Element 105))** <u>and to</u> other slave stations of the plurality of slave stations <u>through the optical fiber transmission line</u> **(See Col. 9 lines 43-45, fig. 1 i.e. transmitting signal to slave station or the remote units(Element 103,104) via optical fibers(Element 108,109,110))**; and converting the upstream optical signal received from the access control section into a second upstream electrical signal **(See Col. 7 lines 8-10, fig. 1 i.e. the main unit(Element 101) for converting the upstream optical signals to RF)**, and transmitting the second upstream electrical signal to the host device **(See Col. 9 lines 30-35,Col. 12. lines 34-39, Col. 14. lines 4-6 i.e. the main unit(Element 101) for transmitting the upstream converted signal to the host device(Element 120) through link (Element 121))**.

Schwartz discloses the access control unit(mutiplex/demultiplex unit) or the expansion unit serves as an intermediate unit to link the communications between the main unit and the remote units **(See Col. 6 lines 57-59)** by demutiplexing and transmitting the downstream optical signal received from the main unit to a plurality of remote units and receiving and multiplexing up streams optical signals from a plurality of remote units to the main unit **(See Col. 4 lines 23-39, fig. 1 i.e. the expansion**

unit(105) receives downstream optical signals from the main unit(101) and transmits the received signals to the plurality of remote units(103,104,106). Also the expansion unit (105) receives upstream signal from the plurality of remote units (106,104,103) and transmits it to the main unit (101)).

Schwartz does not specifically disclose the access control (the expansion units) receives all the downstream and upstream optical signals between the master station (the main unit) and the slave stations (remote units). As shown in fig. 1 of Schwartz some of the outputs of the main unit (101) directly connected to the remote units (102) without requiring the Expansion unit (105) as an intermediate medium.

Ichibangase teaches the access control or the branching unit receives distributes all the downstream and upstream optical signals between the master station and the slave stations **(See Paragraph 57, 12, fig. 12, 13 i.e. fig. 12 illustrates that the master station (Element 110) transmits all the down stream signals to the branching unit (Element 134) then the branching unit distributes the received signals to all slave stations (Element 120-1, 2, 3) through optical fiber (130,131,133). The branching unit (134) also receives the upstream optical signals from all the slave stations and multiplexes the signals and transmits it to the Master Station (110) through optical fiber (130)).**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Schwartz, and modify the optical coupler to be a loopback optical coupler, as taught by Ichibangase, thus providing a means to improve signal transmission efficiency in the network by communicating the master

station and the slave station through a branching unit, as discussed by Ichibangase (Paragraph 9).

3. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz et al. (6,801,767) in view of Ichibangase et al. (US 2002/0114042) further in view of Kewitsch et al. (6,201,909).

Considering Claim 8, Schwartz inherently discloses a method of combining and sending optical signals in a loop, the wireless access system according to claim3, wherein the optical multiplexing/demultiplexing section is an optical coupler including at least an optical port connected to the master station, a plurality of optical ports connected to the plurality of slave stations respectively, **(See Col. 4 lines 30-35, Col. 7, line 32-35, fig. 1 i.e. the expansion unit(Element 105) is an optical combining element for receiving and transmitting down and up stream signals between the main unit(101) and a branched remote units(103,109,110))** and two optical ports **(See Col 9 line 35-50 i.e. primary and secondary optical fiber)**connected to each other by a loop and having formed therein an optical transmission path through which an optical signal inputted to any one of the optical ports from any one of the plurality of slave stations is outputted to the plurality of slave stations through the two optical ports connected to each other by a loop**(See Col. 2 line 25-32 Col. 8 line 65-67, Col 9. line 1-3, Fig 2A-2D i.e. optical fiber transmission line)**.

Schwartz and Ichibangase do not specifically teach a loopback optical coupler or multiplexer/demultiplexer.

Kewitsch teaches a loopback optical coupler **(See abstract, Col. 10 lines 1-7, fig. 5 i.e. loopback optical coupler (Element 82))**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Schwartz and Ichibangase, and modify the optical coupler to be a loopback optical coupler, as taught by Kewitsch, thus providing an optical coupler which has a minimum signal insertion loss, as discussed by Kewitsch(col. 1 lines 39-41).

Claim 9, Schwartz discloses, the wireless access system according to claim3, wherein the optical multiplexing/demultiplexing section is an optical coupler **(See Col. 4 lines 23-39, fig. 1, fig. 5a,b i.e. the expansion unit(Element 105 pf fig. 1) is an optical combiner/splitter unit for transmitting up and down stream optical signals)** including at least an optical port connected to the master station, a plurality of optical ports connected to the plurality of slave stations respectively, **(See Col. 4 lines 23-39, fig. 1 i.e. the expansion unit(Element 105) having one port connecting to the main unit and other ports connecting to the remote units)** and one optical port processed to be light reflective and having formed therein an optical transmission path through which an optical signal inputted to any one of the optical ports from any one of the plurality of slave stations is transmitted to the plurality of slave stations through the one optical port processed to be light reflective**(See Col. 2 line 25-30 Col. 8 line 65-67, Col 9. line 1-3, Fig 2A-2D i.e. optical fiber transmission line which is light reflective material)**.

Kewitsch further teaches a reflective optical coupler **(Col. 4 lines 44-46 i.e. a reflective coupler).**

4. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz et al. (6,801,767) in view of Ichibangase et al. (US 2002/0114042) further in view of Ishida et al. (5,860,057).

Considering Claim 15 and 16, Schwartz and Ichibangase discloses filtering signals in the slave or remote units**(See Schwartz: Col. 15 lines 35-40 i.e. filtering unit in the upstream direction of the remote unit).**

Schwartz and Ichibangase does not specifically disclose the wireless access system, wherein the one of the plurality of slave stations comprising a return signal cancellation units **(See Col. 7 line 44-50 i.e. filters, Col. 8 line 35-44 i.e. switches to prevent signals from transmitting).**

Ishida teaches the wireless access system, wherein the one of the plurality of slave stations comprising a return signal cancellation units **(See Abstract, Col. 3 lines 55-61, fig. 2 i.e. each stations(A,B) comprising a return signal canceling unit for canceling return signal (S_A', S_B')).**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Schwartz and Ichibangase, and modify the slave stations to include a return signal cancellation units, as taught by Ishida, thus providing a means to eliminate signal interference in the communication units, as discussed by Ishida **(col. 1 lines 34-37).**

Conclusions

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hibret A. Woldekidan whose telephone number is (571)270-5145. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on 5712723078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/H. A. W./
Examiner, Art Unit 2613

/Kenneth N Vanderpuye/
Supervisory Patent Examiner, Art Unit 2613